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APPALACHIAN FOREST EXPERIMENT STATION

Asheville, N. C.
May 19, 1936

echnical Note No. 21
anagement - Southern Pines

RECENT VOLUME TABLES FOR SECOND-GROWTH LOBLOLLY PINE IN THE MIDDLE ATLANTIC COASTAL REGION

7.153

By

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INDEXED

RECENT VOLUME TABLES FOR SECOND-GROWTH LOBLOLLY PINE IN THE MIDDLE ATLANTIC COASTAL REGION

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Introduction

The attached loblolly pine volume tables are presented because they differ from existing tables. The data on which these tables are based were collected for the primary purpose of checking the applicability of the several existing loblolly pine volume tables to pulpwood stands in the Middle Atlantic Coastal Region. Checks indicated that the existing tables overestimated the volumes of most trees, both in cubic feet and cords.

Basic Data

The data were collected in several different localities in the Coastal Region of North Carolina and South Carolina. Measurements of 15 randomly selected trees were taken on each of 32 quarter-acre plots. These plots had not been burned over for at least 5 years and represented each 10-year age class from 10 to 50 years, each density of stocking[1/] class from 20 to 100 percent, and each 10-foot site index[2/] class from 50 to 110 feet. Fourteen of the stands sampled were of old field origin and the remaining 18 were of forest origin. The following table shows the distribution of plots by age, density, site index, and origin classes.

1/ MacKinney, A. L. and Chaiken, L. E. A method of Determining Density of Loblolly Pine Stands. Appalachian Forest Experiment Station Technical Note No. 15.

2/ The average height which the dominant and codominant trees have attained or will attain at 50 years is an index of site productivity.

Age of Plot (Years)	Density of Stocking (Percent)			
	20 - 39	40 - 59	60- 79	80 & over 1/
	Site Index (Feet) & Origin of Plot			
10 - 19	93, 100	97, 99	102, 95	97, 111
20 - 29	77, 81	70, 80	85, 101	79, 89
30 - 39	66, 74	64, 70	60, 75	82, 83
40 - 49	58, 73	79, 82	74, 78	76, 79

1/ Plots of old field origin are underlined.

The trees on which taper measurements were taken were felled for this specific purpose. Diameter measurements were taken inside and outside bark at heights of 1, 2, 3, and 4.5 feet above the ground on each tree and at intervals corresponding to each 10 percentile of total height. These diameter measurements were made with a diameter tape before and after removal of the bark at each measurement point.

Methods of Table Construction

Tree volumes were computed using Smalian's formula. Stumps were cubed as cylinders and the top sections were treated as parabaloids.

The table giving total cubic volumes inside bark for trees of different sizes was made by the logarithmic equation method outlined by Schumacher and Hall 3/. Tables giving total cubic volume, excluding stumps and tops above 3 and 4 inches outside bark, respectively, were constructed from converting curves derived by plotting partial volumes /(Actual total cubic volume -

3/ Schumacher, F. X. and Hall, F. D.S. Logarithmic Expression of Timber Tree Volume. Jour. Agr. Research 47: 719-734. 1934

volume of stump and top) ÷ (Actutal total cubic volume)] over total cubic volume determined from the total cubic volume equation. All tables expressed in cords were constructed by applying converting factors [4] for trees of different diameters to the merchantable cubic volume values. These conversions were checked using the curves of cord converting factors over bolt diameter.

Limitations of the Tables

The volume tables here presented are directly applicable in second-growth loblolly pine stands in the Middle Atlantic Region. Generally, trees over 60 years of age will have less taper and, accordingly, more volume than the trees upon which these tables were based. Similarly, application of these tables to scattered individual trees left in earlier logging may result in errors.

Within these limitations, except in cases where minor changes are found necessary for specific local application, these tables are considered applicable regardless of such factors as site, general locality, stand composition and density. A careful study indicates that these factors may influence tree form and hence volume to some extent, but such influences are relatively weak and need not be considered for all practical purposes. In cases where it is desired to check the applicability of these volume tables in any locality or stand, the general method outlined in Technical Note No. 10 [5] of the Appalachian Forest Experiment Station may be used.

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[4] MacKinney, A. L. and Chaiken, L. E. Converting Factors for Loblolly Pine Pulpwood. Appalachian Forest Experiment Station Technical Note No. 20

[5] Barrett, L. I. Computations of National Forest Timber Survey Data - Curve Fitting and Volume Table Checks and Revisions. Appalachian Forest Experiment Station Technical Note No. 10.

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SECOND-GROWTH LOBLOLLY PINE

Table 2. Merchantable Volume in Cubic Feet

Utilization to a 3-inch top outside bark.

(Peeled Wood)

ameter: east gh, tside rk. nches)	Total Height in Feet									Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Volume in Cubic Feet									
4		.383	.655	.969	1.329	1.685	2.035				14
5		.647	1.145	1.662	2.198	2.748	3.311	3.874			42
6		1.008	1.740	2.492	3.256	4.045	4.860	5.676			26
7		1.480	2.451	3.466	4.517	5.589	6.684	7.772	8.891		42
8		1.992	3.264	4.592	5.974	7.353	8.763	10.21	11.65		52
9		2.583	4.193	5.876	7.586	9.336	11.13	12.94	14.76		76
10			5.226	7.299	9.393	11.56	13.74	15.96	18.18		59
11			6.379	8.842	11.38	13.98	16.63	19.27	21.98	24.75	41
12			7.603	10.66	13.56	16.63	19.78	22.92	26.16	29.40	31
13			8.939	12.39	15.93	19.48	23.15	26.90	30.63	34.38	33
14			10.41	14.39	18.44	22.58	26.85	31.11	35.42	39.76	21
15				16.49	21.15	25.92	30.75	35.61	40.93	45.96	18
16				18.73	24.05	29.47	34.89	40.82	46.46	52.96	12
17				21.15	27.14	33.18	39.28	45.96	53.10	59.62	2
18					30.37	37.09	44.39	52.18	59.38	66.66	2
19					33.76	41.66	49.50	58.01	65.99	74.09	-
20					37.33	46.06	55.39	64.13	72.97	81.91	-
Basis		3	9	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 3-inches.

Volumes computed through Smalian's formula.

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SECOND-GROWTH LOBLOLLY PINE

Table 3. Merchantable Volume in Cords

Utilization to a 3-inch top outside bark.

(Peeled Cords)

Diameter breast high, outside bark (inches)	Total Height in Feet: 10	20	30	40	50	60	70	80	90	100	Basis No. of trees
	Number of Cords Per Tree										
4		.0043	.0073	.011	.015	.019	.022				14
5		.0071	.012	.018	.024	.030	.036	.042			42
6		.011	.018	.026	.035	.043	.052	.061			26
7		.016	.026	.036	.047	.059	.070	.082	.093		42
8		.021	.034	.048	.061	.076	.091	.106	.120		52
9		.026	.043	.060	.078	.095	.114	.132	.151		76
10			.053	.074	.095	.117	.139	.161	.184		59
11			.064	.088	.114	.140	.166	.193	.220	.248	41
12			.076	.106	.134	.165	.196	.228	.260	.292	31
13			.088	.122	.157	.192	.228	.265	.302	.339	33
14			.102	.141	.181	.221	.263	.305	.347	.390	21
15				.161	.207	.253	.300	.347	.400	.448	18
16				.182	.234	.287	.340	.397	.452	.515	12
17				.206	.264	.322	.382	.446	.515	.581	2
18					.296	.361	.431	.508	.578	.649	2
19					.329	.405	.478	.565	.641	.719	-
20					.364	.448	.538	.625	.709	.794	-
Basis		3	49	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 3 inches.

Conversion based on 128 cu. ft. cords of freshly stacked, peeled wood, cut in bolts 5 feet long.

For 160 cu. ft. cords, multiply values by .80

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Table 4. Number of trees per cord

Utilization to a 3-inch top, outside bark.

(Peeled Cords)

Diameter breast high, outside bark. (inches)	Total Height in Feet: 10	20	30	40	50	60	70	80	90	100	Basis No. of trees
	Number of Trees Per Cord										
4		232.6	136.9	90.9	66.7	52.6	45.5				14
5		141.3	79.9	55.0	41.6	33.3	27.6	23.6			42
6		90.9	53.8	37.6	28.7	23.1	19.2	16.5			26
7		62.5	38.8	27.5	21.1	17.0	14.2	12.2	10.7		42
8		47.6	29.6	21.0	16.2	13.1	11.0	9.46	8.30		52
9		38.5	23.3	16.6	12.9	10.5	8.79	7.56	6.63		76
10			18.9	13.6	10.5	8.56	7.20	6.20	5.44		59
11			15.7	11.3	8.78	7.15	6.01	5.18	4.54	4.04	41
12			13.2	9.45	7.43	6.06	5.09	4.39	3.85	3.42	31
13			11.3	8.19	6.36	5.21	4.38	3.77	3.31	2.95	33
14			9.80	7.09	5.53	4.52	3.80	3.28	2.88	2.56	21
15				6.21	4.84	3.95	3.33	2.88	2.50	2.23	18
16				5.48	4.27	3.48	2.94	2.52	2.21	1.94	12
17				4.86	3.79	3.10	2.62	2.24	1.94	1.72	2
18					3.38	2.77	2.32	1.97	1.73	1.54	2
19					3.04	2.47	2.08	1.77	1.56	1.39	-
20					2.75	2.23	1.86	1.60	1.41	1.26	-
Basis		3	49	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Number of peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 3.0 inches.

Conversion based on 128 cu. ft. cords of freshly stacked, peeled wood, cut in bolts 5 ft. long.

For 160 cu. ft. cords, multiply by 1.25

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Table 5. Volume in Cords

Utilization to a 3-inch top outside bark

(Rough Cords)

Diameter breast high, outside bark (inches)	Total Height in Feet									Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Cords Per Tree										
4		.0052	.0088	.013	.018	.023	.027				14
5		.0086	.015	.022	.029	.036	.044	.051			42
6		.013	.022	.032	.042	.052	.063	.074			26
7		.019	.031	.044	.056	.070	.083	.097	.111		42
8		.025	.041	.057	.074	.092	.108	.127	.145		52
9		.032	.051	.072	.092	.114	.136	.158	.180		76
10			.063	.088	.113	.140	.165	.192	.220		59
11			.076	.106	.136	.167	.198	.230	.262	.296	41
12			.089	.126	.160	.197	.234	.271	.310	.347	31
13			.104	.145	.186	.228	.271	.314	.358	.403	33
14			.121	.167	.214	.262	.312	.362	.412	.463	21
15				.190	.244	.299	.356	.412	.471	.532	18
16				.215	.276	.339	.402	.469	.535	.610	12
17				.242	.310	.380	.450	.526	.610	.685	2
18					.347	.424	.508	.595	.676	.763	2
19					.386	.476	.565	.662	.752	.847	-
20					.426	.526	.633	.735	.833	.934	-
Basis	-	3	49	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes unpeeled stems above a 0.7 foot stump to a top diameter outside bark of 3.0 inches.

Conversion based on 128 cu. ft. cords of stacked rough wood, cut in bolts 5 feet long.

For 160 cu. ft. cords, multiply values by .8

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Table 6. Number of Trees Per Cord.

Utilization to a 3-inch top outside bark.

(Rough Cords)

ameter: east gh, tside rk. nches):	Total Height in Feet										Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Trees Per Cord										
4	.....	192.3	113.6	76.9	55.6	43.5	37.0	.....	.....	.....	14
5	.....	116.6	65.9	45.4	34.3	27.4	22.8	19.5	.....	.....	42
6	.....	76.9	44.4	31.0	23.8	19.1	15.9	13.6	.....	.....	26
7	.....	52.6	32.6	23.0	17.7	14.3	12.0	10.3	8.99	.....	42
8	.....	40.0	24.6	17.5	13.5	10.9	9.18	7.88	6.91	.....	52
9	.....	31.0	19.5	13.9	10.8	8.76	7.34	6.32	5.54	.....	76
10	.....	.....	15.8	11.3	8.82	7.16	6.03	5.19	4.55	.....	59
11	.....	.....	13.1	9.47	7.36	5.99	5.04	4.35	3.81	3.38	41
12	.....	.....	.....	7.93	6.24	5.08	4.28	3.69	3.23	2.88	31
13	.....	.....	.....	6.90	5.36	4.39	3.69	3.18	2.79	2.48	33
14	.....	.....	.....	5.98	4.66	3.81	3.20	2.76	2.43	2.16	21
15	.....	.....	.....	5.25	4.09	3.34	2.81	2.43	2.12	1.88	18
16	.....	.....	.....	4.65	3.62	2.95	2.49	2.13	1.87	1.64	12
17	.....	.....	.....	.....	3.22	2.63	2.22	1.90	1.64	1.46	2
18	.....	.....	.....	.....	2.88	2.36	1.97	1.68	1.48	1.31	2
19	.....	.....	.....	.....	2.59	2.10	1.77	1.51	1.33	1.18	-
20	.....	.....	.....	.....	2.35	1.90	1.58	1.36	1.20	1.07	-
Basis	-	3	49	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Number of unpeeled stems above a 0.7 foot stump to a top diameter, outside bark, of 3.0 inches.

Conversion based on 128 cu. ft. cords of stacked rough wood, cut in bolts 5 feet long.

For 160 cu. ft. cords, multiply by 1.25

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Table 7. Average Number of Five-Foot Bolts Per Tree

Utilization to a 3-inch top outside bark

Diameter breast high, outside bark. (inches)	Total Height in Feet: 10	20	30	40	50	60	70	80	90	100	Basis No. of trees
	Number of 5-foot Bolts Per Tree										
4		1.3	2.4	3.7	4.5	5.4	6.3				14
5		2.0	3.2	4.5	5.5	6.5	7.7	8.6			42
6		2.4	3.8	5.1	6.4	7.6	9.1	9.9			26
7		2.6	4.1	5.5	7.0	8.5	10.3	11.3	12.3		42
8		2.7	4.3	5.8	7.4	9.1	11.0	12.0	13.0		52
9			4.5	6.1	7.7	9.5	11.5	12.6	13.6		76
10			4.6	6.3	7.9	9.8	11.8	12.8	13.9		59
11			4.7	6.4	8.1	10.0	12.1	13.0	14.0	15.0	41
12			4.7	6.5	8.2	10.1	12.2	13.2	14.1	15.2	31
13			4.8	6.5	8.3	10.2	12.3	13.3	14.2	15.4	33
14			4.8	6.6	8.3	10.2	12.4	13.4	14.3	15.5	21
15				6.6	8.3	10.3	12.5	13.5	14.4	15.6	18
16				6.6	8.4	10.3	12.5	13.6	14.5	15.6	12
17				6.7	8.4	10.3	12.5	13.7	14.5	15.6	2
18					8.4	10.4	12.6	13.7	14.6	15.7	2
19					8.5	10.4	12.6	13.8	14.6	15.7	-
20					8.5	10.4	12.6	13.8	14.7	15.7	-
Basis	-	3	49	71	103	113	80	52	-	-	471

Basis: 471 trees, Coastal Plain of North Carolina and South Carolina.

Average number of 5-foot bolts above a 0.7 foot stump to a top diameter of 3.0 inches, outside bark.

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Table 8. Merchantable Volume in Cubic Feet

Utilization to a 4-inch top outside bark.

(Peeled Wood)

ameter: reast gh, tside ark. nches)	Total Height in Feet: 10	20	30	40	50	60	70	80	90	100	Basis No. of trees
	Volume in Cubic Feet										
5		.461	.800	1.285	1.774	2.355	3.013	3.586			42
6		.739	1.321	2.084	2.955	3.758	4.552	5.369			26
7		1.071	2.055	3.167	4.219	5.286	6.369	7.481	8.627		42
8		1.568	2.962	4.299	5.659	7.062	8.483	9.936	11.40		52
9		2.197	3.906	5.558	7.302	9.068	10.86	12.71	14.53		76
10			4.924	6.986	9.123	11.29	13.51	15.73	17.96		59
11			6.070	8.559	11.13	13.76	16.42	19.07	21.80	24.54	41
12			7.319	10.41	13.33	16.42	19.55	22.70	25.94	29.25	31
13			8.664	12.15	15.71	19.28	22.98	26.70	30.47	34.20	33
14			10.12	14.16	18.21	22.39	26.65	30.95	35.23	39.55	21
15				16.28	20.93	25.74	30.60	35.42	40.86	45.87	18
16				18.51	23.88	29.32	34.71	40.72	46.36	52.96	12
17				20.93	26.97	33.00	39.18	45.87	53.10	59.62	2
18					30.21	36.90	44.30	52.18	59.38	66.66	2
19					33.58	41.56	49.43	58.01	65.99	74.09	--
20					37.13	45.96	55.39	64.13	72.97	81.91	--
Basis	-	1	40	68	103	113	80	52	-	-	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 4-inches.

Volumes computed through Smalian's formula.

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Table 9. Merchantable Volume in Cords

Utilization to a 4-inch top outside bark.

(Peeled Cords)

ameter: east : gh, : side : rk. : nches):	Total Height in Feet									Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Cords Per Tree										
5		.0050	.0087	.014	.019	.026	.033	.039			42
6		.0079	.014	.022	.032	.040	.048	.057			26
7		.0112	.022	.033	.044	.056	.067	.079	.091		42
8		.016	.031	.044	.058	.073	.088	.103	.118		52
9		.022	.040	.057	.075	.092	.111	.130	.148		76
10			.050	.070	.092	.114	.137	.159	.181		59
11			.061	.085	.111	.138	.164	.191	.218	.246	41
12			.072	.103	.132	.163	.194	.226	.258	.291	31
13			.085	.120	.155	.190	.227	.264	.301	.338	33
14			.099	.139	.178	.220	.262	.304	.346	.389	21
15				.159	.204	.252	.299	.346	.398	.448	18
16				.180	.232	.286	.339	.397	.450	.515	12
17				.204	.262	.320	.380	.446	.515	.581	2
18					.294	.360	.431	.508	.578	.649	2
19					.327	.405	.478	.565	.641	.719	--
20					.361	.448	.538	.625	.709	.794	--
Basis	-	1	40	68	103	113	80	52	--	--	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 4.0 inches.

Conversion based on 128 cu. ft. cords of freshly stacked peeled wood, cut in bolts 5 feet long.

For 160 cu. ft. cords, multiply values by .8

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Table 10. Number of Trees Per Cord

Utilization to a 4-inch top, outside bark

(Peeled Cords)

ameter: east : gh, : itside : ark. : nches):	Total Height in Feet									Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Trees Per Cord									
5		199.6	114.3	71.2	51.5	38.8	30.3	25.5			42
6		127.2	70.8	44.9	31.7	24.9	20.6	17.4			26
7		89.0	46.3	30.0	22.6	18.0	14.9	12.7	11.0		42
8		61.7	32.6	22.5	17.1	13.7	11.4	9.72	8.47		52
9		44.6	25.0	17.6	13.4	10.8	9.00	7.69	6.73		76
10			20.1	14.2	10.8	8.76	7.32	6.29	5.51		59
11			16.5	11.7	8.98	7.26	6.08	5.24	4.58	4.07	41
12			13.8	9.67	7.55	6.13	5.15	4.43	3.88	3.44	31
13			11.7	8.34	6.45	5.26	4.41	3.79	3.32	2.96	33
14			10.1	7.20	5.60	4.55	3.82	3.29	2.89	2.57	21
15				6.28	4.89	3.97	3.34	2.89	2.51	2.23	18
16				5.54	4.30	3.50	2.95	2.52	2.22	1.94	12
17				4.91	3.81	3.12	2.63	2.24	1.94	1.72	2
18					3.40	2.78	2.32	1.97	1.73	1.54	2
19					3.06	2.47	2.08	1.77	1.56	1.39	--
20					2.77	2.23	1.86	1.60	1.41	1.26	--
Basis	-	1	40	68	103	113	80	52	--	--	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Number of peeled stems above a 0.7 foot stump to a top diameter, outside bark, of 4.0 inches.

Conversion based on 128 cu.ft. cords of freshly stacked, peeled wood, cut in bolts 5 feet long.

For 160 cu.ft. cords, multiply values by 1.25

Appalachian Forest Experiment Station

Technical Note No. 21

SECOND-GROWTH LOBLOLLY PINE

Table 11. Volume in Cords.

Utilization to a 4-inch top outside bark

(Rough Cords)

Diameter breast high, outside bark. inches)	Total Height in Feet									Basis No. of Trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Cords Per Tree										
5		.0061	.011	.017	.024	.031	.040	.048			42
6		.0095	.017	.027	.038	.048	.059	.069			26
7		.014	.026	.040	.053	.066	.080	.093	.107		42
8		.019	.037	.054	.070	.088	.106	.123	.142		52
9		.027	.048	.068	.089	.111	.133	.155	.178		76
10			.060	.084	.110	.137	.163	.190	.217		59
11			.072	.102	.133	.164	.196	.228	.260	.293	41
12				.123	.158	.194	.231	.269	.307	.346	31
13				.142	.184	.226	.269	.312	.357	.400	33
14				.165	.212	.260	.310	.360	.410	.461	21
15				.188	.242	.298	.353	.410	.467	.529	18
16				.213	.275	.337	.398	.467	.532	.610	12
17					.309	.377	.446	.526	.610	.685	2
18					.345	.422	.505	.595	.676	.763	2
19					.383	.474	.562	.662	.752	.847	--
20					.424	.524	.633	.735	.833	.934	--
Basis	--	1	40	68	103	113	80	52	--	--	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Volume includes unpeeled stems above a 0.7 foot stump to a top diameter, outside bark, of 4.0 inches.

Conversion based on 128 cu.ft. cords of freshly stacked rough wood, cut in bolts 5 feet long.

For 160 cu.ft. cords, multiply values by .8

Appalachian Forest Experiment Station

Technical Note No. 21

SECOND-GROWTH LOBLOLLY PINE

Table 12. Number of Trees Per Cord.

Utilization to a 4-inch top, outside bark

(Rough Cords)

Diameter breast high, outside bark. (inches)	Total Height in Feet										Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of Trees Per Cord										
5		164.9	94.3	58.7	42.5	32.0	25.0	21.0			42
6		104.9	58.6	37.1	26.2	20.6	17.0	14.4			26
7		73.6	38.9	25.2	18.9	15.1	12.5	10.7	9.26		42
8		51.3	27.2	18.7	14.2	11.4	9.48	8.10	7.06		52
9		37.0	20.9	14.7	11.2	9.02	7.53	6.43	5.63		76
10			16.8	11.9	9.08	7.33	6.13	5.26	4.61		59
11			13.8	9.79	7.52	6.09	5.10	4.39	3.84	3.41	41
12				8.12	6.34	5.15	4.32	3.72	3.26	2.89	31
13				7.03	5.44	4.43	3.72	3.20	2.80	2.50	33
14				6.07	4.72	3.84	3.23	2.78	2.44	2.17	21
15				5.32	4.14	3.36	2.83	2.44	2.14	1.89	18
16				4.70	3.64	2.97	2.51	2.14	1.88	1.64	12
17					3.24	2.65	2.24	1.90	1.64	1.46	2
18					2.90	2.37	1.98	1.68	1.48	1.31	2
19					2.61	2.11	1.78	1.51	1.33	1.18	--
20					2.36	1.91	1.58	1.36	1.20	1.07	--
Basis	-	1	40	68	103	113	80	52	--	--	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Number of unpeeled stems above a 0.7 foot stump to a top diameter, outside bark, of 4.0 inches.

Conversion based on 128 cu.ft. cords of freshly stacked rough wood, cut in bolts 5-feet long.

For 160 cu.ft. cords, multiply values by 1.25

SECOND-GROWTH LOBLOLLY PINE

Table 13. Average Number of Five-Foot Bolts Per Tree

Utilization to a 4-inch top, outside bark

Diameter breast high, outside bark. (inches)	Total Height in Feet									Basis No. of trees
	10	20	30	40	50	60	70	80	90	100	
	Number of 5-Foot Bolts Per Tree									
5		1.5	2.1	2.9	3.5	4.2	4.9	5.8			42
6		2.0	2.9	3.9	4.6	5.6	6.6	7.5			26
7		2.2	3.4	4.5	5.6	6.9	8.5	9.4	10.3		42
8		2.3	3.8	5.0	6.4	7.7	9.6	10.7	11.6		52
9		2.3	4.1	5.3	6.9	8.3	10.4	11.6	12.3		76
10			4.3	5.5	7.2	8.8	10.9	12.3	12.8		59
11			4.4	5.7	7.4	9.2	11.3	12.6	13.2	14.4	41
12			4.5	5.9	7.6	9.5	11.6	12.9	13.5	14.7	31
13			4.5	6.0	7.6	9.7	11.8	13.1	13.8	15.0	33
14			4.5	6.1	7.7	9.8	11.9	13.3	14.0	15.3	21
15				6.2	7.7	9.9	12.0	13.4	14.2	15.5	18
16				6.2	7.8	9.9	12.0	13.5	14.4	15.6	12
17				6.3	7.8	10.0	12.1	13.6	14.5	15.6	2
18					7.8	10.0	12.1	13.7	14.6	15.7	2
19					7.9	10.0	12.2	13.8	14.6	15.7	--
20					7.9	10.1	12.2	13.8	14.7	15.7	--
Basis	-	1	40	68	103	113	80	52	--	--	457

Basis: 457 trees, Coastal Plain of North Carolina and South Carolina.

Average number of five-foot bolts above a 0.7 foot stump to a merchantable top diameter of 4.0 inches, outside bark.